SKIDATA Architects & Engineers Specifications

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1 General Specifications

1.1 *Reference & Certifications*

Design and operation of the proposed system shall conform to the following referenced codes, regulations, and standards as applicable:

1. National Electrical Code (NEC)
2. UL 294 and UL 1076 as required
3. FCC Rules and Regulations Part 15, Radio Frequency Devices
4. National Electrical Manufacturers Association (NEMA) Section 250 Enclosures for Electrical Equipment
5. Federal, State, and Local laws, regulations, and codes.
6. ISO 9001 quality assurance standards
7. Each manufacturer with components in the PRCS herein shall meet the following requirements:
   a. Manufacturer shall have been continuously in operation for 5 full years
   b. Equipment to be installed shall have been installed in at least 5 previously installed locations

1.2 *Operational Requirements & Site Conditions*

The proposed PRCS system is an fully online system of components and sub systems that shall provide the necessary items to include software, hardware, documentation, installation, training, spare parts and post installation support to comprise an operational, fully integrated on-line, real-time parking and revenue control system (PRCS) that shall function in the manner described in this part.

A. System Capabilities

1. General: With all software and firmware provided herein, the system functions shall exist and be fully tested with specified applications. Software has been installed in at least twenty-five documented and fully operational sites.

2. Database management: The system shall create and maintain a master database ODBC and SQL compliant of all cardholders, events, financial transactions, alarms, operator permissions, administrator permissions, various rate schedules and other system activities for connected points (devices). Database shall be ODBC and shall be fully compliant to operate with Seagate Crystal Reports Software or other typical ODBC SQL report generators.

3. Audit trail: The system shall maintain an audit trail file of operator, cashier, and administrator activities.
   a. System shall provide the ability to generate a report by operator, time, date, and type of activity (audit code).
   b. The system shall allow the operator or administrator with accepted password protection to direct the audit report to screen, printer, or file.
   c. The audit trail feature shall record the following system events:
      1. Database backup started, ended, or failed
      2. Site parameters modified
      3. System log-in, log-out, rejected, terminated, or forced log-out
      4. Cardholder or parker information added, deleted, or changed

5. System time and date changed
6. System shut down
7. Event added, deleted, changed, or executed
8. Alarm event message added, deleted, or changed
9. Communications initiated or terminated
10. Download started
11. Field device type and hardware added, deleted, or changed
12. Access privileges added, deleted, or changed
13. Passwords added, deleted, or changed

4. Input point monitoring real-time: The PRCS system shall collect and processes status information from all monitored points. Connectivity shall be by Ethernet over IP to all lane devices.
5. Alarm annunciation: The PRCS system shall by audible and visual, output and incorporating structured graphics, annunciate all alarm events, trouble conditions, and various device status advisories from within the system. Annunciation shall be to OWT, Server Display, and shall be forwarded by electronic messaging to other systems or devices including email and SMS messages. The forwarding of the events shall also be able to be configured by schedule and recipient allowing delivery of those messages based on the time of day.
6. Input point supervision: The system electronically shall supervise gates, columns, OWT, and Readers real-time with monitored and supervised status of the data lines.
8. Operator Menu Access: the operator password shall control which menu items the individual operator may access. It shall also restrict operators from certain specified menu commands that do not appear on the screen, or are grayed-out (disabled) for a given operator.
9. Alarm handling: The alarm or event handling portion of the system shall provide dynamic color alarm graphic maps with the following functions:
   a. User definable graphic maps shall depict input point conditions.
   b. The system shall support the importing of most bitmap file format graphics produced with any graphic drawing program such as .TIF, .BMP or .JPG file formats. Vector file formats are not acceptable.
   c. The PRCS shall be capable of storing a number of graphics for operations that are custom definable.
   d. Within the control monitor screen, the input point icon on the PRCS shall flash, changes color, AND send a text message or output a message. The computer's internal sounder shall beep when an alarm condition exits. Clicking the mouse on the icon in response to the alarm condition shall move or directly control the screen window and start a response to the alarm.
   e. Output alarms of a field system device located anywhere in the PRCS system(s) shall be responded to by a click on a screen icon making a set or reset the status of the output point alarm.
   f. User definable alarm messages shall be structured and sent to the PRCS Server, Workstation, and cashier station or output device such as internet mailbox address or PDAs.
   g. The PRCS system shall support Ethernet, USB, and Fiber Optics topography device and network monitoring.

10. Event processing:
    a. OWT events within the PRCS system cashier workstation terminal shall provide the user ability to define an event, which may be executed by a cashier (with permission) or the administrator. Data may be defined by:
       1. Event name
       2. Event created from triggering of the event (i.e.: low on tickets)
       3. Event trigger type proximity reader, credit card, loop sense, etc.
       4. Output point group to be activated or not. Door strike operation enabled/disable Reset panel alarm

b. Logical operators: the PRCS shall provide a scrolling list of the event triggers with logical operators and allows the user to attach one or more of the logical operators with one or more of the event triggers and card actions listed above to program a custom sequence of events.
   1. = (Equal to)
   2. != (not equal to)
   3. > (Greater than)
   4. < (Less than)
   5. >= (Greater than or equal to)
   6. <= (Less than or equal to)
   7. And
   8. Or

11. Time zones: The PRCS shall provide the capability for the user to define time zones with identification of the location with configuration parameters.

12. SYSTEM FAILURES
   a. Communications between the server (Host) and the OWT shall NOT be a redundant nor a bi-directional path.
   b. Should the HOST Server of the PRCS lose communications with the cashier (OWT), operations shall continue for all available and connected points. Local history of all transactions shall be buffered at the devices and OWT (cashier), and then automatically uploaded to the Host once communications are re-established. A minimum of 5000 transactions shall be so buffered at columns and Cashier Stations.
   c. In case of a total commercial line power failure, the connected devices shall continue to operate and make operational decisions using optional backup power supplied with sufficient time optional backup power supply shall fail secure (closed).
   d. TCP/IP based data transfer between system components and various third party data banks, logical counting systems and packages shall be UPS battery backed up.
   e. PRCS shall also provide ASCII file formats of system specific data for evaluation by third party systems.
   f. UPS shall have alarm tones to indicate failure of commercial power. Said alarm device shall be made part of the Cashier Station and Administrators work station.

14. Event and Transaction History: The PRCS shall maintain a user event record that provides a means for an administrator to access this information as historical data or real-time. It shall be possible to print information in the log in real-time or by a report. This feature allows remote monitoring of unattended parking facilities. Exception events are reported automatically to a remote mobile telephone (text messaging) and or email. Recipient list and schedules are also supported.
   a. Ticket tracking at Cashier Station shall provide ticket sequence report showing transactions related to individual tickets.
   b. The data for how and when a fee was paid with ticket number shall be available in printed report form.
   c. Monthly ticket value report shall be available showing a listing of tickets that have been issued but are not yet processed at any exit. Cashier Station shall receive data on each transaction adding it to transaction log and consolidating it into daily activity reports. It shall also retrieve transaction data base information for ad-hoc reports on access activity.

15. Anti-Passback Control: The PRCS shall provide the capability to prevent more than one parker from gaining access to or from a gated area by recognizing when a parker who is granted access or egress is passing back the credential to another person to use the same media. If so programmed at the card level, an output text message shall be sent to the Server or OWT. The gates shall NOT operate if the anti-passback

rules for that card or group (card level privileges) are violated by the second and illegal credentialed user.

16. Anti-Tailgate Control: The PRCS shall be designed to prevent more than one vehicle from accessing a controlled area as a result of a single card transaction. Specific alarm shall be generated to the operator.
17. In-X-It (Entry/Exit) Control: The PRCS shall provide the capability to control vehicles entry into or exit from an area based on the previous transaction status of the card. Gates shall not activate, and a text message shall be sent to the OWT and SERVER that this system transaction was attempted.
18. Cardholder Definition: The approved PRCS shall provide the user to define Cardholders with the following identification and operating parameters.
    a. Serial number of the parker card
    b. card personalization (customer details are registered via administration unit
    c. unlimited use within specified time frames
    d. validity can be defined for each ticket individually
    e. excess time can be charged back to customer
    f. automatic extension of validity when customer file is updated
    g. blocking of individual tickets customer file update
    h. special functions for validity extension and processing of lost or stolen cards
    i. transaction monitoring for anti-pass-back functions
    j. transaction check can be disabled for individual tickets
    k. customer group functions for setting of max. group size per account
    l. authorized management control of use of separate car park sections by group
    m application of a variable rate for excess time
    n. counting category
    o. Data carrier programming
    p. time of excess time payment (immediate or invoice payment)
    q. permission to enter the car park even if it is full
    r. week-day specific validities and time windows
    s. rate for excess time used
    t. Name –Address- Telephone Number, personal id document number
    u. rental agreement for park-space
    v. License tag number of vehicle
    w. expiration date of credit card used to guarantee card
    x. current card status (normal or blocked)
    y. social security number
19. On-line help system: The PRCS shall provide help screens
20. Mobile Control Center of the PRCS shall provide monitoring and control functions to include gate activation, and monitoring of other defined devices in the system. Activation shall be by use of remote real-time PDAs or remote PCs using an HTML Web Browser. Various remote commands shall include at a minimum control of:
    a. equipment devices governing and monitoring
    b. cash levels in POS or OWTs,
    c. event status
    d. access control
    e. External web applications allowing the PRCS to operate a Control Center Screen.

22. Real-time system activity window. A real time system monitor window shall be provided for display on an OWT screen. The real time window shall have the capability to selectively display the following items at the operator's discretion
    a. gate(s) status
    b. column(s) status

c. host status
d. lot total count
e. lot counts status by section(s)
f. event log selectable by specific device to include alarm status

23. System Status Display. The PRCS shall provide a dynamic system status summary display (UDF) that graphically indicates status information within the system. All status display information is to be summarized in a single window and contains at least the following:
a. terminal up/down on/off
b. devices online/offline
c state of input output device
d. indication of whether each terminal reader is disabled or not reporting

26. Workstation Control. Workstations (OWTs) along with server(s) shall be assigned a Name and have IP address for LAN connections.

28. Fee Computer Normal Transactions. The PRCS Server shall independently, and in concert with a cashier work station, an OWT, or the Administrative unit, automatically and manually input, on basis of time and/or pre-programmed rate structure, display parking fees.

- Normal transactions over presence loops using vehicle loop detector, and in proper sequence shall energize and allow for only one operation or transaction.
- Cashiers shall be provided ticket reading device to insert machine-readable ticket presented by the patron.
- Fees are calculated providing amount, transaction number and other data to be displayed at the monitor, OWT, cashier terminal, or external display.
- Completion of transaction using Ticket reading device and Cashier work station, OWT, or administrative unit cause amount, transaction number, and other data to be printed on the ticket receipt for customer. Files are also being sent to Cashier Station data storage.
- Upon completion of all sequences in this part, a pulse shall be sent to open exit gate. As vehicle leaves the cashier or payment lane and passes the last loop in sequence, a gate closes terminating the transaction, resets payment display at monitor, and resets the remote display unit to null.

29. Fee Computer Exception Transactions. The PRCS shall include replacement or transaction handling of lost tickets, unreadable, stolen tickets, non-revenue tickets, coupons, disputed fee transactions, insufficient funds transactions, back-out transactions, cancelled, and voided transactions.
a. Transactions in this part are processed at OWT, Cashier work station, or administrative unit.
b. Individual keys or codes on the fee computer, OWT, or administrative unit identify and log to data base or transaction log each exception transaction as they occur.
c. Fee Computer, OWT, or administrative unit shall have a "CLEAR" key that deletes each previous transaction entry with the ability to select a "CLEAR ALL" event.
d. No Sale and void transaction keys are provided.
e. No Sale and Void Transaction keys are enabled or disabled by administrative rights within the Cashier Station, OWT, or administrative unit.
f. No Sale, Void Transactions, clear, and clear all keys are tracked within the data base and made part of the event exception log, activity report, cashier shift report, and cashier summary report and also allow for an additional message to be input associated to that transaction.

30. Fee Computer Functional Requirements. PRCS solution shall be provided with the following activities exception transaction capability:

a. mutilated ticket handling with ability for manual input to complete the transaction or generate a new ticket as a lost ticket

b. lost ticket handling key input shall display and use maximum daily fee program for transaction to proceed.

c. stolen ticket handling from machine identification of ticket with rate computation selected by cashier or administrator. Transactions are visually presented to fee computer, OWT, cashier work station or administrative unit.

d. Non-Revenue transaction handling is provided a function key for cashier to input or activate that describes the transaction. Such transactions are tracked in the event log.

e. Disputed fee handling key may be activated as needed which will archive on ticket time and location of entry. This transaction is stored in exception report log.

f. Insufficient funds transaction is a key activated function that is noted in the event transaction log and allows for additional input regarding patron information to be tracked and reported in the system.

g. Voided and cancelled transaction handling using cashier, OWT, or administrative input does not initiate another type of transaction for the same patron. This event is supervised by the loop presence detector. This transaction, a courtesy exit, is an event that notifies the administrator as part of the exception log.

h. Cashier Station, OWT, cashier terminal, or administrative unit has up to 67 pre-programmable function keys that may be preset to differentiate type of transactions. Keys are programmed based on administrative rights.

i Activation of any of the preset key functions in this part can be programmed to generate a count pulse to separate count registers.

J. Courtesy exits and courtesy validations within the PRCS are applied validation codes.

k. Cashier Station, OWT, or administrative unit generates a receipt which includes transaction date, time, fee collected, transaction number, lane identification, and facility name.

1. Cashier work station, OWT, or administrative unit prints a receipt at any time prior to the start of the next transaction

31. Manual Fee Station Functional Capability. The system shall provide programmable rate structure from within the administrative and password rights in the setup.

a. System shall provide a minimum of 99 rate structures per facility for up to 20 car parking facilities.
b. Each rate structure shall have a minimum of 3 rate increments or blocks provided that are easy to install and password protected.
c. Each block is described in this part to be a fee for duration period.
d. Automatic adjustment for daylight savings time and leap year is provided in the calculation of fees.
e. System shall invoke the option for a 24 hour maximum fee.
f. System shall be able to invoke a grace period defined for each parking event.
g. Administrative computer and manual pay station shall include a computer with ticket mechanism printer, cash drawer, fee display panel, keyboard, function keys, receipt printer, and a monitor. Ticket printer shall be able to feed new tickets from a reservoir of at least 500 tickets.
h. Cashier Fee Collection Mechanism at Cashier Station shall be maintained by a lockable cash drawer activated by the manual pay station computer. Collection tray shall have locking covers.
i. PRCS shall track validations, exceptions, and non-revenue transactions individually and separately from normal transactions. It shall generate reports for all transactions, shift summaries for each cashier with daily totals to Cashier Station, OWT, Terminal, or Administrative units. Separate internal count of total transaction shall be maintained and tracked.
j. Cashier Station cashier station fee computation and display shall operate only when a cashier is individually logged onto the system and when the password for

that operation is recognized as valid by the system. Administrative rights are assigned to provide unique sign-on and sign-off control. Unique control shall be for each cashier operating the fee computer, OWT terminal, cashier station, or administration computer as an authorized operator. A minimum of 50 individual unique cashier authorizations shall be recognized by the PRCS.

k. All tickets entered into the ticket reader mechanism shall be imprinted with machine readable time-in, time-out, ticket number, device entry point where the ticket was issued, transaction number, lane number, validation imprint for credit, merchant account number, in barcode format for each ticket. Other tickets, coupons and validations that are not machine readable or classified as a void ticket for whatever reason shall be, manually processed by keyboard inputs at the Cashier Station.
    l. PRCS Cashier Station shall allow a transaction to be voided and logged void if:
    1. a standard ticket form used within the system is not available or presented for a transaction;
    2. a normal ticket is presented to ticket reader mechanism manually, read, and then terminated for cause; or
    3. A normal ticket is inserted into exit column with failure or disallowed for the read to computation for any reason then subsequently presented to the Cashier Station for fee payment.

l. PRCS Cashier Station shall be a component of the established data transmission system being LAN/WAN with Ethernet data transfer protocols, and allowed system latency. Data packet transfer that has a transmission error shall be protected from data loss. Data transmission within the LAN/WAN which, during normal operations, number greater than 1 per hour may be locally held for batch transmissions at each intelligent device in the PRCS. Should problems arise in normal data transmissions, device will show off-line and in alarm status.

m. PRCS Cashier Station shall incorporate a patron fee display. This display is used to indicate fee due and payable from patron. Fee payable amount is a resultant of all coupons and decrementing amounts per the transaction. Multiple coupons and payment methods shall be tracked per event transaction. Display shall only show total net fee. Display, where specified, shall be stand- mounted inside cashier work area, or may be exterior surface mounted with an optional all weather NEMA environment enclosure with Lexan lens for viewing net fee payable. Display shall show fee until Cashier Station terminates transaction with receipt of payment.

n. The Cashier Station or workstation shall allow for mass production of validation coupons directly from the ticket transport mechanism.

o. The Cashier Station ticket transport and receipt printer shall use a thermal print head for printing ticket, validations, and receipts.

32. Automatic Payment Machine- (Pay on Foot Machine) shall read encoded dispensed tickets and validation coupons issued by the system ticket dispenser, Cashier Station ticket read/write machine, administrative ticket read/write device, or and remote validation printer.

a. Automatic Payment machine shall be LAN/WAN Ethernet device.

b. Automatic Payment machine requirements to be provided in this part shall:
    1. Compute payment due within the system and when on line as a system device;
    2. Be provided with basic coin system for up to 16 different coins denominations with a maximum capacity of 250 coins and recycling capability.
    3. Total coin recognition shall be at least 16 coins in standard US coins as well as tokens.
    4. Escrow bills for owner protection with termination of transaction returning same bill to customer on transaction termination

5. Be provided with bill banknote-recycler that supports processing up to 23 banknotes in 4 positions with stack container for 1000 banknotes and two dispensers up to a maximum of 110 banknotes that are self filled
6. Accept payment by credit card, and accept decrementing amount by coupon or validated ticket.
7. Accept multiple bills of various denominations and returns appropriate change.
8. return ticket unprocessed if unreadable with appropriate display message to patron to proceed to a cashier.
9.. be provided with tamper alarms and convenience lighting.
10. be provided as ADA compliant
11. be CISP compliant for credit card transactions
12. when required display out of order message on display
13. provide customer specific screen saver, logo or message
14. maintain 4 hoppers for change dispenser coin and bills
15. provide integrated voice system for customer communication including microphone, button, and speaker
16. be provided with heater, fan and ticket container for fan-fold tickets.
17. be equipped with a coin cashbox that holds up to 600 coins of various denomination received
18. maintain a minimum storage of 600 banknotes of the same value. Dispenser shall maintain 110 banknotes with two different notes provided to the customer.
19. have 2 additional standard hoppers with a maximum of 1500 coins not self refilling
20. Escrow transaction shall be capable of holding up to 15 notes
22. have a display in 5.7in TFT color graphics with user defined logo capable behind a break resistant window.
23. be supplied with transaction printer to provide receipt for credit-card transactions.
24. be provided with self-refilling compact hoppers and bank note dispensers
25. be provided with a minimum of 2 additional coin hoppers for change storage
26. be equipped to accept credit card in batch or real-time approval with CISP certification
27. be provided with barcode thermal ticket read/write
28. be available with optional MAG stripe ticket read/write
29. be equipped with multi language capability on display
30. be provided with built-in 125/13MHz hands free proximity read for contactless keycards
31. be able to print a minimum of 3000 receipts without reloading paper stock
32. be capable of processing a minimum of two types of payment to include debit card, proximity user credentials, credit card, coupons, cash bills, coins, or validations.
33. be wall or pedestal mount with illuminated pictograms.

33. PRCS shall be an on line, computer-based access control system for those authorized to have access to parking facility, doors, or special parking areas. Each transaction is to be processed as a revenue controlled event or access or PRCS controlled non revenue event.

a. third party security systems shall have ability to pulse gates for entry or exit grants using dry-contact relay activation.

b. Owner vehicles requiring free, unrestricted, and fast ingress and egress to facilities may be so accommodated using AVI technology by system controller as a non-revenue event.

c. Monthly parkers who prepay for parking on a monthly basis and have unrestricted in or out privileges during all hours

d. Frequent parkers who prepay or prearrange billing and will be able to be billed or charged for parking at fees equal to or discounted, from revenue general and parking shall be accepted by the system.

e. Head end billing shall be tracked by exported files or by seamless parking accounting software. Seamless accounting software shall be PARIS by Integrapark.

g. PRCS shall have preprogrammed access levels defined as groups. Groups with card access shall be provided the following parameters of access:

1. time and date to be active
2. time and date to be inactive
3. Specific door control or level of parking accessed
4. Anti-passback controls
5. Elevator call
6. Door strike and hardware control
7. Various rates for dates and times parked
8. Extended time beyond allowed access to be charged to account.
9. Cards used for access within the PRCS system shall be

10 reprogrammable type.

11. System data shall track a minimum of 20 programmable fields for card holding parkers.

13. Records of card-holders shall be provided searching, sorting and printing along with integration into special forms such as invoices or mass mailings.

14. Data shall be exportable to a head-end billing system. Said integrated software shall be PARIS by Integrapark.

. 15. Activity Usage Reports shall be provided from within the ACS portion of PRCS. This data shall include at a minimum date, time, card number, and location of entry as well as exit location

16. Count Reports shall be provided to monitor and report counts of the ACS card holders present on an hourly basis by group, lot occupancy.

17. Tracking shall include occupancy and report peak occupancy during each hour in real-time to the Cashier Station or Administrator Work Station.

18. PRCS shall provide collection of fees from parkers and commercial vehicles on monthly prepayment with delineating or parking charges.

19. End of month billing and credit card charges shall be provided.

20. PRCS shall monitor and report revenue associated with ACS system to Cashier Station. Revenue report shall separate revenue by type of payment and shall indicate the ACS ID device number account number, and month for which payment was received.

21. PRCS shall monitor and provide for positive posting of payments and automatic lockout of ACS card-holders after expiration of prepaid account or group preferences have expired.

33. Invoice accounting Package shall be part of the head-end solution and shall issue billing invoices for accounts as well as separate or consolidated billing for commercial vehicle transactions that exceed a prescribed dwell time. Each invoice shall include the ACS group ID device or associated number with account number and monthly rate associated. System shall provide a monthly report listing the total number of ACS group tags invoiced and the total dollar invoiced. Software shall be integrated into the PRCS and shall be PARIS by IntegraPark.

a. Package shall handle all normal accounting functions with the ACS.
b. Integrated software shall include invoice report.
c. Integrated software shall include ledgers for each account.
d. Integrated software shall include adjustment ledgers.
e. Integrated software shall include history reports by customer or account.
d. Integrated software shall allow all reports and data to be on-line and real-time with monitoring of ACS usage from CD-ROM storage of transaction data for audit and analytic purposes.
e. Integrated software shall be password protected and part of the administrators software suite.

34. PRCS shall provide the following counting functions:
a. every vehicular entry or exit from each area designated or floor designated as a zone
b. total number of parking spaces within an area(s) shall be field programmable
c. Threshold limits shall be used to trigger full status and selectable limit shall be selected to allow resumption of parking transactions.
e. Signage shall be either dynamic (logic) or manually controlled based on counts.
1. signage in this part shall be open/closed or numeric showing space count
2. count subsystem shall maintain and display separate counts for each parking facility and occupancy or space available
3. count sub system shall activate any and all electronic signs individually controlling signs from the PRCS. Full status or count shall be able to be over-ridden by the Cashier Station operator and Administrator.

35. Security
a. PRCS will provide report and data only with input of allowable password
b. All databases, transactions, ACS cardholders, reports, etc shall be secured from all unauthorized entry and tampering from either within or outside Cashier Station, APS or Administrative work station.
c. SYSTEM SHALL BE CISP Compliant for credit-card transactions

1.3 *Software Performance Requirements & Modules*

A. The PRCS shall have an <u>installed</u> capacity to accommodate the following minimums:
1. A central database RAID on the host server shall be greater than 80GB
2. Unlimited number of access groups. Limitation is based on data base storage size.
3. Central on-line historical data storage of 500,000 events with a local sub-controller storage capability of up to 200,000 cardholders and 50,000 events for a minimum of 2 years.

B. The PRCS Operations Software
1. The server operating system shall be services by Microsoft Windows® Server 2003. The server provides multi-tasking and multi-user capability licensed to match and support the workstations with Microsoft Windows® XP Professional.
2. The system database shall be SQL Server Version 2005 or later version with appropriate number of licenses to match system hardware specified.
3. Software features shall be fully documented in the form of a complete user's manual including operation and installation sections with a detailed description of the major parking system functions.
4. Software shall be pre-loaded with high-level report generator and user defined report generator
5. Occupancy Monitoring Software shall provide monitoring of:
a. Every vehicular entry or exit lane from each area or floor or "nested" parking area defined as a zone equipped with a minimum of two vehicle detection

loops per lane and an assigned loop detector. This pair of loops, with detector, shall detect direction and position of the vehicle. Directional logic shall be installed so that a vehicle entering said area through the entry direction shall be counted as an inbound vehicle. Vehicle exiting said area through the exit direction shall be counted as an exiting vehicle. Anti-coincidence operation shall be tracked for entry and exit at the same time.

b. Total number of parking spaces within defined parking areas shall be field programmable.

c. The Number of available parking spaces within each defined area with loop coverage and be tracked with display counts on the Cashier Station computer .

d. Each area as defined in this part has two programmable thresholds:

- One threshold shall be used to automatically trigger "full status" on logic signage
- Alarm and graphic presentation shall be provided to the operator to activate signage switches manually for gate status changes.
- The second threshold shall trigger open status to the operator at the Cashier Station to provides manual switching of status from full to open.
- Optional logic signage systems may be integrated and from a an associated process server control directional and lot full sign.
- Count routines on system PRCS server software shall provide ability to maintain and display counts for total occupancy levels or spaces available.

Additionally the count routines shall:

- provide and maintain and display counts for total occupancy levels or spaces available.
- Upon lot reaching the high level mark (full) associated lot dispenser shall issue lot full display and cease issue of tickets.
- Upon lot reaching space available greater than 0, the ticket dispenser will automatically return to normal dispense mode for ticketing.
- Associated lot full signage shall be controlled manually.
- Optional automated control of associated signage (relay activated) shall be within the control parameters of the PRCS.

e. System shall store lane, facility and zone counts in files. These data files are available for report generation to analyze lot utilization and activity levels.

f. Transaction Counts shall provide, display and compare variables as separate counts related to each transaction.

1. At entry lanes ticket dispenser counts are compared against directional loop counter and gate counter.
2. Dispenser and Gate counters shall record the number of operations.
3. Similar counting shall provide data necessary to track activity at Cashier Station or other lanes within the PRCS to include
   a. through an exit lane.
   b at fee computer
   c. Payment machines (POF) count number of transactions processed.
   d. At Exits, exit columns using inline (on-line) data output monitor vend counts from transaction devices to include ticket readers, POF machines, and system transactions generated by OWT or Server Stations.
4. PRCS shall include power supply, dust proof relays, and exterior circuit components to control signage.

h. TAKE TICKET WITH YOU SIGNS shall be provided where necessary. Signs shall be a single message LED or projected light sign. Signage requirements in this part shall:

1. be considered met if entry column has a display with visual presence to remind patron to carry ticket. Placard sign shall be illuminate as a button or display. This display shall continue until the ticket is taken from the dispenser or the event is terminated with a back out.
2. be provided at all ticket entry lanes mounted in close proximity to entrance gate if not on the dispenser as a part of the dispenser column and must be easily seen by the parker.
3. include power supply, dust proof relays, and exterior circuit components to control signage where applicable.

i. Lane Open/Closed SIGNS shall be single message LED. Signs shall be considered to meet this part:
1. with manual control from any single Cashier Station
2. switch activated
3. located at all entry lanes either ceiling or wall mounted to be easily seen upon approach to lane or garage by parker
4. counting system may optionally control signage in this part
5. Display must be able to be read at a minimum of 40 ft on approach to lane or garage. Typical character size shall be a minimum of 4 in. high.
6. Signs shall display "FULL", "LOT FULL" or "X" as a single message.
7. include power supply, dust proof relays, and exterior circuit components to control signage.

j. Traffic Control Signage at approach to booth shall:
1. be able to be seen within 25 ft of lane
2. be dual message "X red" "check-green"
3. be a traffic light RED/GREEN with LED or INCANDESCENT lighting in lieu of #2 in this part.
4. be controlled manually at sign on or sign off of cashier at Cashier Station
5. include power supply, dust proof relays, and exterior circuit components to control signage.
6. have a minimum height of 4 inches per character.

5. Equipment monitoring within PRCS is a process of routines that shall:
a. monitor operational status of all entry and exit lanes in real-time
b. monitor each entrance lane with display or display an alarm that indicates:
1. lane status open or closed
2. gate failure
3. ticket shortage or reloading required
4. gate up
5. gate arm removed
6. loop presence and vehicle entry/exit with gate arm up or off
7. pass-back of ticket
8. illegal ticket use
9. back out with ticket issued
10. ticket jam

c. Monitor POF machines display from to OWT using Ethernet connectivity as a device in a LAN. This display internal to the POF shall report:
1. coin vault status
2. door status
3. receipt paper supply
4. currency requires attention
5. ticket jam status
6. ticket shortage requiring re-supply
7. stolen ticket alarm

8. Current coin and cash levels of device

d. Monitor abnormal status conditions displayed on monitor(s) and shall be accompanied by audible alarm at each OWT or Server using:
   1. displays that continue to flash until abnormal condition is corrected
   2. display that shows correction needing intervention at any one OWT or Server
   3. alarms that shall be recorded in the system data-base noting time and device
   4. alarms that shall generate data input recorded with responding operator and OWT, Cashier Station, or Server computer at which the response was made.

e. Monitor alarm codes shall show failure of applicable devices showing status of data circuits.
   1. frequency of operational error shall be recorded by PRCS
   2. failure and support messages with actions to assist in later failure mitigation shall be provided within PRCS

f. Included system software modules shall be selected as needed to enhance the functionality of the system.

C System Software Features and Licenses are supplied to enhance the functionality of the system.

Standard Features shall include;

1. Up to 100 devices per facility
2. Up to 20 car parking areas per facility
3. support and use of barcode tickets
4. support and use of various data carriers such as keycards, proximity, and mag-stripe
5. support and use of control center on the monitor for external device monitoring and control
6. report generation including compile reports and filter conditions
7. generation of Turnover Tax
8. solution for customer administration including rental agreement form design
9. solution for customer administration for validation of providers
10. solution program for device control
11. solution for rate management
12. solution for journal entries including system log
13. solution for data archiving and data synchronization
14. solution for remote monitoring and control for maintenance of software and system.
15. solution for data archiving of error log
16. generation and control of system shutdown
17. solution for provision of software upgrade launched by the approved operator
18. solution for parking tickets and cards to include:;
    - short-term parking tickets
    - special tickets
    - contract parker cards
    - supplement payment at POF and Cashier Stations
    - charter or visitor tickets and cards
    - lost ticket replacement
    - single exit ticket types and control
    - replacement tickets
    - validation ticket

Articles Features shall include:

1. adjustments to ticket imprinting
2. face text definition and design for ticket imprinting
3. provision for imprinting selection as on or off
4. provision to imprint user name, user number, validity, ticket value, and customer name
5. provision for imprinting on ticket follow-up ticket note

6. provision to ticket imprinting insertion direction arrow
7. provision to ticket imprinting receipt information to include parking lot number, and door code

8. provision for creating depot ticket that has long-term implications to include charter cards, visitor cards, and renewable long-term tickets with and without multi-use
9. provision for authorization of multiple card payment per transactions
10. provision for extended entry permission of access when the lot is full
11. provision for defining waiting period as a system-based discount ticket not accepted until after a specific date-time
12. provision for re-use of ticket with waiting time. Ticket for entry or re-entry only after a minimum defined period of time.
13. provision and utilization rules defined to accept or reject tickets based on
    a. Establishment and application of long-term ticket rules
    b. Establishment and application of time-debit cards
    c. Establishment and application Cale, Schlumberger, and ASM Cards
    d. Establishment and application of personalized cash debit cards
    e. Establishment and application of staff permits and employee tickets
    f. Establishment and application of Door Access Cards, Proximity, or other cards.
    g. Establishment and application for tickets used in establishment and implementation of level counting computer occupancy metering , pre-signal control, and configuration of external system event notifications to include fire-alarms
    h. Establishment and application of car park capacity, spaces available, and full levels
    i. Establishment and application section designation for parking or nested parking
    j. Establishment and application of remote facility settings required for ticket portability between various car parks
    k. Provides transaction control overrides for individual sections which allows parkers to exit after power outages etc.
    l. Provides transaction control for magnetic stripe tickets
    m. Provides transaction control for staff permits
    n. Provides transaction control twin track magnetic head on ticket reader
    o. Provides transaction control second magnetic head control for bi-directional reading of tickets

Car Parks Features shall include:

1. Level Counting installation and configuration for occupancy metering
2. Level counting installation and configuration for signal control
3. Level counting installation and configuration for event notification with messages
4. Level counting installation and configuration for level counting designation of car parking area capacity
5. Configuration of remote facility settings required for ticket portability at multiple parks
6. Configuration of remote facility settings for site number and designation
7. Configuration of remote facility settings for combined car park section entry
8. Configuration of remote facility settings for operating data of story metering
9. Configuration of remote facility settings for on screen (monitor) data presentation
10. Transaction control override for individual sections to allow parkers to exit after power
11. outages, special event evacuations or rapid clearing of the lot(s)

Customer Features shall include:

1. System totals for valid rental agreements
2. System totals for number of tickets issued, broken down by type
3. System totals for rental agreements about to expire
4. System totals for total number of ticket holders
5. System totals for total number of blocked tickets
6. System totals for number of lost tickets
7. System totals for number of defective tickets
8. System totals for number of expired tickets
9. System totals with user defined criteria

10. Number of rental agreements broken down by posting codes
11. System data filtering criteria provided for all totals
12. Data Export and Data Import provisions for portable contract parking cards used at various or multiple car parks
13. Printing and display of contract parkers present at the facility or at a specific car park within a facility with display of details to include specific contract parkers present by way of filtered rental agreement details
14. Printing and display of contract parkers having entered the car park by a specified time, by a specific name, or by vehicle registration.
15. Provides calculations of totals by ticket(s) and number of tickets issued
16. Provides printing of any displayed data herein
17. Provides generation of agreement forms to include text fields, with precise placement and adjustment of field sizes including printing of test pages.

Data Interface Features shall include:

Export data shall include
1. parking transactions entries and exit movements
2. parking transactions of contract parker cards and credit cards
3. payments, sales payment transactions
4. payment transactions broken down by method of payment in cash, checks, invoice credit card or customer cards.
5. payment transactions broken down by method of payment to include value cards, validations, and tokens.
6. payments with electronic purses
7. payments with customer cards, ISO discount tickets etc
8. daily and monthly reports of cash flow
9. turnovers of handling fees and amounts rounding differences
10. settings and setup of facilities, car parks, devices, and articles
11. cash filling levels of POF and cashier stations
12. shift reports of POF and Cashier Stations
13. card utilization
14. ticket return details
15. user details to include full records or edited items only
16. card utilizations
17. events and alarms
18. card batches
19. staff details with full record or edited items only

Import events shall include:
1. new edited customers
2. user and ticket details
3. ticket blocking data
4. credit card reservations

Functions of the PRCS software shall include:
1. Ethernet based file access functions of TCP/IP protocol
2. file copies function of the operating system
3. data export and import via floppy, USB disk or other media
4. ASCII Text file format export and import
5. automatic data export/import at scheduled interval
6. automatic data purging of files after 14 days
7. manual launching of data export and import routines
8. manual file administration by way of Server or host device.

Typical host commands within the PRCS shall include:
1. remote control commands to the control center program to control devices
2. status inquiry commands for shift and lane information

3. request of counter and counting domains
4. set counting category mode and level of counts
5. set occupancy and counting domain mode details
6. request presence of contract parking cards or credit cards
7. deletion of credit cards or contract parking cards from presence list
8. block or unblock of contract parking cards
9. deactivation of transaction control (anti-pass-back function) of one contract parking card for one transaction.
10. permanent deactivation of transaction control of one contract parking card
11. set contract parking card to defective or lost
12. create change or delete contract parking card
13. importing or requesting customer user data
14. Activate or deactivate remote event messaging
15. Cyclic polling
16. status information
17. shift details
18. filling levels of POF and Cashier work station
19. system events
20. reasons for card rejections
21. occupancy counter
22. counting domains
23. presence of single contract parker and credit cards

Delayed Payment shall include:

1. detailed account statement
2. data for each customer or user and movements
3. overall statement for each customer or user
4. Statements for customer include name, number, agreement number, address and sum
5. Parking activity details include facility used, entrance date/time and invoice amount
6. Printout of facility statement
7. data backup and account statements up to one year old
8. sum total functions by facility
9. remote send data totals for all customer or a specific customer
10. module that includes export of individual transaction details
11. module that includes export of sum totals of specific customers
12. Features that include archiving and retrieval of account records to Data Archive module

Hands Free Features shall include:

1. provides for large distance contactless data transfer in addition to the standard short distance system data. Shall provide for RFID of Automatic Vehicle Identification (AVI) for long range readers.
2. Unique 8 digit carrier serial numbers for identification
3. Includes interoperability with data carriers scanning up to 25 ft
4. Provides wide footprint of transmission envelope from various data carriers.
5. Carriers with approved data formats include Tagmaster

Large Scale Facility features shall include:

1. Up to 255 devices per parking facility
2. Up to 100 car areas per parking facility
3. control processing tasks can be re-distributed among various OWT or cashier terminals, POF, and administrative unit

Money features shall include:
Reporting of:

1. net turnover report
2. theoretical turnover report
3. cashier reports with sales and means of payment providers broken out.

4. car lot reports with system totals, sales, means of payment and validation providers.
5. data filters for report generation
6. evaluation of current cash balance
7. statistical evaluation of POF operations
8. evaluation reports of validated and surcharged amounts
9. statistical evaluation of various special debit and cash cards
10. shift reports, cash, in payments, out payments, cash container balances

Rate Management features shall include:

1. setup, edit, and deletion of up to 99 different tariffs for a single facility
2. individual tariffs are allocated to different articles
3. various tariffs specify the rate periods, rate time windows, rate tables, maximum fees and flat rates allocated to the individual or assigned car park within a facility
4. Open end tariffs allow the last tariff to continue
5. Flat rate options applicable to daily rules
6. flat rate options applicable to weekly rules with consecutive day rules defined
7. Payment or exit required within or after a specified time window is possible to a rate

Remote Event Messaging features shall include:

1. automatic transmission of event reports to Remote OWS units, Cashier Station, Administration units, mobile phones, radio pagers or public telephones exclusive display of messages for up to 5 unmanned facilities.
2. up to 160 characters in SMS text format sorted by priority
3. integration of required network services
4. multi-level security feature prevents reception of report from unidentified car parks
5. duplex messages are possible (send/receive)
6. user defined system events for transmission triggers of messages
7. User defined telephone and modem number per trigger
8. Event log transmission, system warning messages, breakage reports, and coin container full for POF
9. Messaging may be soft switch toggled on/off
10. Messages may be based on recipient and scheduled based on time of day

Settings shall include:

1. various languages for Parking column terminals (Primary and Secondary language)
2. language includes structure of advertisements, advisory information and help text.
3. allow or block exit through device or cashier OWT of short-term parking tickets, cash debit cards, credit cards, and parking cards with zero rate
4. payment options
    a. maximum credit card spending amount
    b. management of check clearance fees
    c. use of debit cards at exit points
    d. allow acceptance or rejection of validation configuration
5. keyboard function structure for Point of sale product definition
6. definition of minimum amount for issuance of ticket receipt at payment
7. structure of Payment with coupon
8. structure payment with up to 5 types of credit against amount authorization mechanisms
9. authorization categories with codes
10. basic authorization categories expanded to 90 categories
11. data filter option for reports and for blocking transactions
12. Blocking using data filters logs the identification of the cashier, ID number of the pay station (POF), ticket number, date, and facility number

Signboards and Parking Guidance features shall include:

1. number of unoccupied spaces in the car parking lot
2. number of unoccupied spaces on each level counting
3. number of unoccupied short-stay spaces in each car park

4. number of unoccupied parking areas in up to 20 areas of occupied spaces allocated to a specific counter
5. Boolean value 0-1 to control signboards with serial interface ON /OFF Right/Left etc
6. BCD signboard control by Omron, CQM1, Matsushita, NAIS FPO PLC
7. Setup edit, delete all automatic counters
8. selection of counter readings to be displayed manually by output
9. Maintains running sum totals for multiple car parking lots from a specified point
10. Control of up to 16 counters per signboard

Statistics features shall include:

1. occupancy stats
2. entrance exit stats
3. fee payment turnover stats
4. parking duration stats
5. number of parkers in a time frame (Hour)
6. Filters include
    a. ticket type
    b. counting
    c. credit cards
    d. electronic purses
    e. day
    f. week
    g. month
    h. year
7. previous 24 months of daily records
8. output based on closure of day
9. scale of ordinate Intervals shall be adjusted manually

Ticket features shall include:

1. data exports to third party systems for invoicing, first time use, group sales, special event ticketing and employee activity.
2. Ticket groups are assigned a settlement period (day-week-range of days)
3. Ticket valid dates specified
4. Full audit trail provided for totals, gross sales, price per ticket, code, settlement method, customer name and event designation.
5. Tickets include time debit cars, cash cards , discount tickets, or standard ticket

1.4 *Reporting*

The PRCS shall be equipped with a fully integrated reporting system. The PRCS shall not require the operator to write dynamic programs or use ladder logic to generate reports. PRCS shall be provided with standard predefined reports. The predefined reports shall provide at a minimum:

1. Cardholder Report - shall include all fields from the standard and user defined cardholder record
2. Input Point Report - shall list all connected hardware input points including the point name, terminal name, and controller name to which the points are physically connected
3. Alarm Response Message Report
4. Alarm Instruction Text Report
5. Output Point Report - listing of all connected hardware output points
6. Operator Assignment Report - listing all system menu commands that are assigned to each operator
7. Alarm History Report listing the alarm history filtered by alarm input point name, and start and stop date and time
8. Event Trigger and Action Report - listing all user define event sequences
9. Configuration settings for each facility.

10. Field Devices Report - listing all terminals, input points, and output points
11. Card Transaction History Report - listing the transaction history filtered by transaction type including event date and time
12. Access Report - listing all access groups, reader groups, and cardholders
13. All event names that are linked to a specified event action.
14. All preset device operation profiles with their date and time.
15. All gates and columns programmed for a specified, individual, cardholder.
16. Transaction History Report with the ability to filter by any one or more of the following parameters:
    a. Reader name
    b. Start date
    c. Start time
    d. End date
    e. End time
    f. Transaction type
17. Monitored Device status up
18. Monitored Device status down
19. System restart
20. Entrance Column BOTH nearly out or out of ticket stock
21. Card event activated at a keypad reader
22. Card event deactivated at a keypad reader
23. Alarm event monitoring status set
24. Alarm event transaction for reset
25. Alarm event acknowledged date and time
26. Gate arm off and loop activation alarm
27. Gate up and loop activation alarm
28. LRI data input to ticket record
29. Cashier Escape key activated at gate up with no sale
30. System Device not seen (monitored)-providing real-time supervision
31. System or Device AC power fail alarm
32. Daily event logs shall show a listing of changes to system and users who made changes. It shall include print communication messages, facility lane equipment alarms, remote gate opening and system logs on/off.
33. Detailed credit card report shall provide a sum total and chronological listing of each credit card transaction by credit card company, by equipment location for a specified selected time period. Report shall include credit card payments made to all machines within PRCS. This report is used to reconcile credit card transactions with processor payments.
34. Exception transaction report shall provide all exception transactions in chronological order or by transaction type. Report shall be available for a selected time period and also by machine. This report is used to audit APM activity and performance.
35. Daily and Monthly Lane Activity report shall be provided for each exit lane. It shall provide a summary of activity type (normal, exception, credit card). This report provides trend analysis of transactions by type.
36. Daily and Monthly Non-Revenue Transaction Report shall provide all non revenue transactions in chronological order, by type, for a specified time period. This report is used for statistical information.
37. Automatic Pay Machine Report shall provide a report for all APM daily activities from all pay stations and for each APM.
    a. Revenue total and summary of revenue by transaction type to include credit card, cash, and validations
    b. Summary of number of transactions by type including lost ticket
    c. Summary of change dispensed by APMs
38. Monthly Lane Volume Report shall provide entry and exit counts by date. This report is used for management planning and statistical information.
39. Monthly Duration Report shall provide duration of stay to include patrons elapsed parking time and patron time of entry. This report is utilized in rate structure analysis, rate usage analysis, statistical information and revenue analysis.
40. Daily event logs with changes to system and users who made the changes

41. Print communication messages, alarms, remote gate opening, & system logging on or off
42. detailed credit card report with totals, chronological listing by transaction
43. exception transaction report by type and by machine.
44. daily and monthly lane activity report for trend analysis and statistics
45. daily and monthly non-revenue transaction report
46. automatic payment machine report summary for each pay station.
47. revenue total and summary of revenue by transaction type (credit card, cash, validation, and prepaid or debit transaction
48. summary of transaction for lost tickets
49. summary of charge or fee for each transaction with amount tendered shown
50. summary of transactions by type including lost tickets
51. monthly lane volume report of counts by date
52. monthly duration report of stay by parker showing elapsed time & rate structure used
53. Statistical information in text or graphic display that employs the following variables: rate, revenue, facility use, elapsed time, time of entry, time of exit ticket type, group association, and type of payment. Variables shall be ODBC and shall be accessible by SQL report generators.

Data Exportability

1. Data shall be available in a standard flat ascii format for export from the PRCS system to interface with various system software packages using modules and various communication formats with 3rd party systems and applications.

Data Importability

1. Data shall be available in a standard flat ascii format for import into the PRCS system for interface with various 3rd party systems and applications.

Ad-hoc Report creation

1. Data shall be queried by various report writers using ODBC compliant online interface directly to PRCS system.
2. Reports shall be written from selections or by using common report writers such as Crystal Reports. User definable reports shall be saved and shall be re-run as required using the report fields and format each time the report is run.

1.4.1 Cashier Station

The Cashier Station is the cashier component of a parking management system (PRCS) . This is the cashier solution to complex parking requirements for mid and large-sized parking facilities. Cashier Stations accommodate customer-specific needs with expansion for future capabilities. Specific functions shall include payment of parking fees and the issuing of tickets. Reading and issuing tickets is effected through a separate unit connected to the PC. Cashier Station control center software package shall optionally be installed to provide numerous functions for control and monitoring of all peripheral devices. The Cashier Station can be used either as a stand-alone unit or as an integral part of a PRCS system configuration.

1. Plain text messages provide instant system status overview based on authentication rights
2. Periodically or on demand based on authentication can generate reports.
3. Shall monitor all lane equipment as to status, operating, alarms, and events.
4. All system devices shall have compatible communication ports for the LAN
5. Communication ports provide monitoring continuously and in real-time using Ethernet TCP/IP within a user specific LAN
6. All devices within this system of parking equipment shall incorporate a crystal controlled clock circuit that can be corrected or changed automatically or manually.
7. Internal clock circuits shall be stable and accurate to +/- 1 minute per month

8. Ability to mass produce validation coupons directly from the station for use with the system multi-mode capability to operate between administration unit , OWT, and Cashier Station mode with a logic soft switch activation
9. Supports fee payment by:
    a. cash
    b. credit
    c. city cards
    d. debit cards
    e. invoice
    f. check
    g. smart-card
    h. redemption of parking validations
    i. local recharge of system cash debit card and city cards
    j. attached bar-code scanner for coupons
10. Flat rate payment redeeming of validations
11. Supports special sales, receipt printing, and issuing of replacement tickets
12. Production and assignment of all system based parking and debit cards
13. Control of local gates and traffic devices from the PC.
14. Can operate two cash drawers from a single workstation for shift relief.

1.4.1.1 Patron Fee Display

The fee display shall indicate fee due to patrons paying cashier at Cashier Stations. Output shall be from local control cashier station. This device is capable of being mounted inside the cashier booth or external to the booth.

It shall be of a size and color to be easily seen from within the vehicle.

1. Cashier booth interior mounting shall be by suction cups and stand where possible to be seen by patron at time of payment.
2. Cashier booth exterior mounting shall be by NEMA Type IV weather resistant enclosure finished in acrylic enamel to match the booth color. NEMA Type IV enclosure shall
    a. have fee display protected by impact resistant window.
    b. be supplied with control cable to computer
    c. be supplied with line voltage power cord within 1in of EMT or conduit to Cashier Station.

2 Barrier Gate and Barrier Arms

The barrier column and barrier gate arm shall be installed at designated entrance and exit points of parking areas. The barrier and column are considered part of the actual access control devices of the PRCS.

1. Barrier gates with arms shall be modular design.
2. shall be slaved to a master control unit.
3. shall have connections and control features that provide simple integration into existing systems.
4. Shall notify the Parking System when the barrier arm has been removed or knocked off.
5. halogen bulb, reflector, and mounting that causes the emitted light to be seen through a semitransparent glass-fiber reinforced synthetic resin extruded barrier arm
6. Barrier Arm shall have an elliptical profile and a maximum length of 2.8m. Said arm may be easily field modified by cutting to any lesser length.

7. End cover caps for the Parking Barrier Arm shall be made of light collecting synthetic polycarbonate.
8. Rotary current asynchronous motor shall be sealed with right angle drive gear box attached as a single unit. Belt driven units are not acceptable.
9. Barrier column shall accept 110v Primary power for the geared motor.
10. Motor unit with self-locking lever drive and barrier output shaft shall have built in limit contacts. Gates shall incorporate into one housing all necessary components for a functioning unit..
11. It shall have heavy duty gate motor sealed with no belt pulley
12. it shall have components with circuit breaker protection
13. it shall have adjustment of gate arm travel
14. it shall be able to withstand damage to the arm when motion is limited.
15. Barrier motor drive integrated into barrier top section enclosure shall be hermetically sealed and maintain easy accessibility for service.
16. Barrier logic board shall be provided with dual I/0 iso-optic isolated inputs/outputs.
17. Barrier arm shall provide a minimum opening time average of 1.5 seconds 0-90 degrees.
18. Barrier arm shall be elliptical profile yellow arm glass fiber reinforced with a minimum 3000PSI rating.
19. Barrier shall be less than 1135mm arm from top of column down to top mounting base
20. Column diameter shall be no more than 220mm in diameter.
21. where needed and specified in this part, an articulated arm max length for the barrier column shall have a maximum length of 2159mm and a maximum height 2070mm
22. additional logic board shall be provided to increase iso-optic outputs by Eight (8) in/outs
23. Gate arm shall be adjustable to 36 inches above drive level when in the down position.
24. Articulating arms shall be provided in areas of limited headroom from drive level to overhead structure.
25. Barrier gate arm shall be a 3000 GFE extrusion, transparent for light emitting to make arm easily seen and with breakaway design that can be easily replaced when broken.
26. Articulating arms shall have no parallel cabling or rods to the mid length pivot point that may snag or break to injure passersby
27. Exterior arm control mechanism shall not have pinch or nip points that are dangerous to personnel when the arm is in motion.
28. Barrier arms when removed shall trigger a message to be sent to the system to notify that the arm has been removed. In addition, no wiring other than contact plates for system determination of status, position, or removal of arm.
29. A rubber seal shall run along the underside of the barrier arm that is used to push the arm off the hub (break-away feature) in case of a vehicle impact and to minimize damage to the vehicle.
30. Motor is a three phase induction motor with worm gear drive (right angle).
31. Normal operating voltage of the motor is 230VAC 3 phase with 4 poles at 250VA.
32. The Parking Barrier Arm is easily removed without special tools and is also designed for impact break-away without damage to column, head, or vehicle.
33. Support post of the Parking Barrier is made of high grade aluminum measuring 220mm in diameter with an exterior wall thickness of 2mm.
34. Barrier columns shall have logic control circuitry to provide 9 selectable operational modes.

3 Entry Ticket Device, Exit Ticket Device, & Transfer Columns

The parking column shall process data carriers in the form of barcode tickets proximity cards, credit cards, coupons, validations and magnetic stripe cards as well as various other data carriers including the ability where designated to include a 3rd party barcode reader capable of reading print@home coupons and validations.

1. Display shall be LCD color graphics user definable display 320 x 240 pixels type with damage resistant lens capable of displaying graphics and images.
2. Messages are displayed to prompt the parker with various messages to include lot status, corporate logos, welcome statements, and special marketing statements Backlit panel will display built –in fixed instructional messages for patrons to
3. Include any string format. Such messages may include "Please Take The Ticket", "Lot Full", " Lane Closed", and many others in a multitude of languages.
4. All programming done centrally from server. No interface required directly to lane device
5. Each column shall be equipped with an Intercom over IP that has an operational microphone and speaker.
6. Each column shall be equipped with heater and cooling fan to maintain operating temperature between -30 and +45C (ambient).
7. Off line operation (system connectivity off and power on) shall be for a minimum of 5000 transactions.
8. Intercom is full duplex with call button standard equipment integrated in the face of the unit.
9. Alternate between 2 different languages on the display without user intervention
10. No tools shall be required to remove the ticket transport or remove a ticket jam.
11. Lane controller device shall communicate with Ethernet and a minimum CAT5e to the system. No proprietary RS485 cabling or other proprietary system allowed for communication to lane devices.
12. Lane controller shall support USB, Serial, and RS-232 communication mediums to add on devices
13. Lane controller shall have additional inputs and outputs assignable to functions like open/closed sign relays
14. Front door provides easy access for ticket loading and logic board access.
15. control unit in the upper column includes CPU, input/output terminals, power supply and logic board for display
16. Lower cabinet shall come complete with pedestal, floor stand, column door low ticket sensors, and power supply board.
17. Tickets issued are cut with a self-sharpening ticket cutter.
18. Coders have thermal write heads with zero contact to increase the life span of the head and to ticket wear to head elements
19. Coders have an easy jam removal mechanism that requires no tools, takes minimal time and training for the operator to clear.
20. Coders generate appropriate jam error and alarm codes to the system.
21. Where no ticket is involved column will track and control gates for RFID , AVI, or hands-free grants
22. shall be on line with the OWT, Cashier Station, APS, and APM as a device on the LAN ASM City Cards or Cash Debit Cards accepted high or lo coerciveity
23. All columns come standard equipment with heater and cooling fan thermostatic controlled to ensure a reasonable operating temperature for components in various weather conditions. Humidity range is up to 90% non-condensing
24. Columns have the capability to be remotely monitored by LAN, WAN, or remote web access
25. Perpetual calendar clock device onboard maintains time date with network (LAN) update and configuration.

26. Stolen ticket detection is an on-line feature that polls ticket validation from the system. System alarm code is also generated to the log file.
27. Automatic ticket cancellation for on-line devices voids ticket and captures it should the parker back out of the loop system without pulling the ticket. System alarm code is also generated to the log file.
28. Ticket jam detection is output to the system as an alarm event from the ticket reader when the entry column, exit column or transfer column has a ticket jam.
29. Test Tickets can be generated from inside the storage area of the column using logic board mounted PB switch.
30. CISP Certification for data integrity of any credit card transaction.
31. System controls ticket generation and display if the lot is full
32. Command unit to be off line if lot is full
33. Support optional Electronic Webkey solution
34. Entry Columns
    - Dispenser (entry-column) will not issue a ticket if a vehicle is not present. Each entry column shall have a ticket vault for back out tickets.
    - Credit Card in and out shall be supported
    - output an alarm code when the supply is low
    - Illuminated push button switches for ticket generation are on entry columns when the presence loop is activated with vehicle presence.
    - Three function key switches are user definable are available
    - Back-out tickets or tickets left remaining in the dispenser upon leaving the column without gate operation (opening) will generate a system alarm for the revenue control system and swallow the ticket
    - Shall employ a configurable feature for traffic jams that will pre-print a portion of the ticket to increase the speed of issuance of tickets to reduce wait times for ingress patrons
35. Exit Columns
    - Each exit column shall have a processed ticket vault for audits.
    - A pulse shall be sent to respective gate to process egress grant upon completion of transaction.
    - shall be made available to read credit card and provide egress grant with or without issuance of receipt printed.
    - Exit columns shall apply grace period for APM paid tickets. Excess grace period shall require additional payment by credit card in the exit column or instructions to proceed to cashier shall be issued without an exit grant.
    - Tickets shall be inserted in any direction and be readable, i.e. backwards, forwards, right side up and upside down
    - Where applicable have a 3rd party barcode reader for print@home tickets
    - Have multiple parking positions for data carriers to support processing of frequent parker cards or similar
    - Issue lost ticket remotely during transaction with patron
    - Three function key switches are user definable are available
36. Transfer Columns
    - shall track tickets for entry access into special areas with rate changes
    - Tickets may be retained and reissued
    - Shall allow for unlimited transfers between nests
    - Three function key switches are user definable are available

Input - Output events that send codes or triggers to the system:

1. Gate close loop	input
2. Gate Close	input
3 Space full from remote counter	input
4. Disable ticket issue when reader or AVI is accepted	input
5. Gate open	input
6. Gate close	output
7 Space full	output
8. Ticket in Throat of Coder	output

9. Fan	output
10.Heater	output
11.Column off line	output
12. Remote ticket issue	input
13. out of tickets	output
14. in process state	output
15. presence (vehicle) loop	input
16. bad read (ticket or badge)	output
17. storage vault full	output
18. low ticket supply	output

4 Ticket Reader & Card Transport Mechanism

Mechanical Read/write transaction machine (Coder) shall be provided and used for processing ISO Sized Cards in up to 4 directions. The unit is capable of concurrently processing up to five different ticket technologies within a single slot. Credit cards, barcode tickets, receipts, and data carriers (smart cards) shall all able to be accepted. Up to two types of tickets can be drawn in and cut automatically from stacks of fan-folded stock while single cards can be fed in manually through the ticket slot at the front. Two park positions and two eject positions allow parallel processing of two cards. No tools should be required to remove ticket transport from any device or remove a ticket jam.

1. Coders are used at exit columns, entry columns, OWTs, APM, APS, and Cashier Station locations. The ticket reader shall be used to:
    a. encode tickets based on a discount percentage
    b.. encode tickets in advance (in quantity)
    c. print validation coupons in advance (in quantity)
    d. accomplish mission critical performance in replacement of component for exit columns and entry columns
    e. reads credit cards
    f. writes to magnetic stripes on credentials
    g. reads barcodes for coupons or parking tickets
    h. provides a mechanism for high-volume, easy encoding of tickets.
    i. For Cashier Station, OWT, and APS provides a single point for
        a. reading credit cards
        b. writing receipt tickets
        c. printing replacement tickets
        d. barcode, proximity cards, debit cards, and validation coupons.
2. Standard equipment and design
    a. single ticket slot for reading and coding
    c 300 dpi print head
    d. issue ticket in less than 2.5 seconds
    e. ISO card acceptance
    f. accepts Proximity cards
    g. light barrier kit for validation tickets with punctures
    j. self diagnostic run routine
    k. adjusts print field for ticket print area size
    l. USB interface

5 Proximity Card & AVI System

5.1 *Short Range Proximity Reader*

The Proximity Reader is designed for opening entrance doors in car parks as well as gaining access to facility through vehicle lanes where by a short range inexpensive proximity card is preferred to a long range AVI card. These doors include swing gates, overhead doors, and slider type gates, as well as the traditional lane barrier gate. Located in building vehicle access points as well as elevators and interior access doors, this reader can be operated with keycards, contract parker cards or smartcards. Credentials are assigned or issued
to employees, vendors, contract parkers and others where the user frequents the car-park. Each door card carries a unique number by which it can be identified within the PRCS system.

1. Reads proximity keycards at 122.88KHz and 13MHz
2. Proximity controller device shall communicate with Ethernet and a minimum CAT5e to the system. No proprietary RS485 cabling or other proprietary system allowed for communication to lane devices.
3. PRCS shall track entry into and exit from with counts to maintain accurate vehicle parking counts for the facility.
4. If the access control card is not valid for the PRCS or is not authorized for entry at that location or at that time, PRCS shall send an invalid user attempt message to a log file. Gate shall not open and an audible or visual alarm shall display at the APS or Cashier Station.
5. The system with proximity reader shall have a error processing and protocol checking that identifies multiple reads of the same card and within a few seconds due to waiving the card in front of the reader and corrects for anti-passback operations where system access grants are buffered.
6. The reader for proximity cards shall have protection from interference of neighboring electronic or electronically controlled devices.
7. Reader shall be so designed to be incorporated into the ticket reader, exit column, entry column face where one exists.
8. Reader shall be from the same manufacturer as the system devices to insure protection from electronic device interference.
9. Proximity card access system shall consist of readers which read ID card number, site code number, or special data string and transmit this data for verification for authorized access or egress by the system
10. Distributive, networked, or centralized processing shall be employed. Multi-lane access, occupancy, and anti-passback shall be system monitored and controlled within and by PRCS whether it is a revenue or NON-revenue transaction or event.
11. Proximity reader data shall identify a vehicle for validity of vehicle authorization and count shall be processed by the PRCS. This validation check shall
    - provide access grant for all current and approved users
    - refuse grants to those not approved as "valid" parkers
    - maintain economic loading factors
    - provide a mechanism to bill or invoice for non rate schedule parkers.
    - have an alarm message to the FMS or APS if an invalid card attempted to access the facility
    - be posted to daily exception log.
12. vehicles that have approved access grants by the PRCS shall be processed for access but not required to pull a ticket or be revenue controlled outside of normal head-end billing.
13. PRCS shall monitor allowed duration, cue time, or parking privileges to require additional fees due for overstay of duration, excessive cue time, or parking during time blocks that are not allowed for the parker's agreement.
    Such parking events shall be:
    1. fee paid on exit cash, card, or credit card
    2. automatically billed during normal billing cycle
    3 logged and posted to exception file
14. mounting reader to entry or exit columns for proximity readers in accordance to
    - manufacturers specifications
    - stanchion or goose-neck mounting
    - ceiling or pole mounts with direction specific readers for individual lane reception of AVI or long range proximity cards or tags

- mounting hardware kits approved for the type of reader
- power supplies for the type of reader

5.2 *Long Range AVI Reader*

The AVI Reader is designed for opening gaining access to facility through vehicle lanes by a long range proximity AVI tag. These doors include swing gates, overhead doors, and slider type gates, as well as the traditional lane barrier gate. Credentials are assigned or issued
to employees, vendors, contract parkers and others where the user frequents the car-park. Each tag carries a unique number by which it can be identified within the PRCS system.

1. Reads tags provided by Tagmaster NA for use with the LR6 reader.
2. Proximity controller device shall communicate with Ethernet and a minimum CAT5e to the system. No proprietary RS485 cabling or other proprietary system allowed for communication to lane devices.
3. PRCS shall track entry into and exit from with counts to maintain accurate vehicle parking counts for the facility.
4. If the tag is not valid for the PRCS or is not authorized for entry at that location or at that time, PRCS shall send an invalid user attempt message to a log file. Gate shall not open and an audible or visual alarm shall display at the APS or Cashier Station.
5. The system with AVI reader shall have a error processing and protocol checking that identifies multiple reads of the same card and within a few seconds due to waiving the card in front of the reader and corrects for anti-passback operations where system access grants are buffered.
6. The reader for AVI tags shall have protection from interference of neighboring electronic or electronically controlled devices.
7. Distributive, networked, or centralized processing shall be employed. Multi-lane access, occupancy, and anti-passback shall be system monitored and controlled within and by PRCS whether it is a revenue or NON-revenue transaction or event.
8. AVI reader data shall identify a vehicle for validity of vehicle authorization and count shall be processed by the PRCS. This validation check shall
   - provide access grant for all current and approved users
   - refuse grants to those not approved as "valid" parkers
   - maintain economic loading factors
   - provide a mechanism to bill or invoice for non rate schedule parkers.
   - have an alarm message to the FMS or APS if an invalid card attempted to access the facility
   - be posted to daily exception log.
9. vehicles that have approved access grants by the PRCS shall be processed for access but not required to pull a ticket or be revenue controlled outside of normal head-end billing.
10. PRCS shall monitor allowed duration, cue time, or parking privileges to require additional fees due for overstay of duration, excessive cue time, or parking during time blocks that are not allowed for the parker's agreement.
    Such parking events shall be:
    1. fee paid on exit cash, card, or credit card
    2. automatically billed during normal billing cycle
    3 logged and posted to exception file
11. Mounting reader in accordance to:
    - ceiling or pole mounts with direction specific readers for individual lane reception of AVI or long range proximity cards or tags
    - mounting hardware kits approved for the type of reader
    - power supplies for the type of reader

6 Automatic Payment Machines (APM)

6.1 *Cash & Credit APMs*

The Cash & Credit Automated Payment Machine (APM) shall be capable of reading encoded tickets issued by ticket dispensers within the system, computing parking fees, allowing payment by any multiple methods of cash with bills , credit, debit, smart-card, cash with coins, tokens, validation coupons, 3rd party print@home barcode coupons and proximity cards. Station shall operate automatically and have a device on the PRCS that allows a facility to be unstaffed.

Operational Requirements:

a) Machine shall take machine-readable ticket
b) Machine shall take coin in payment
c) Machine shall take bills as payment
d) Machine shall take credit card in real-time and be CISP compliant
e) Three function button user assignable with the ability to assign the automatic sale of an event ticket, lost ticket, or any other type of ticket available in the system directly from the APM.
f) APM shall support 4 simultaneously selectable languages
g) No tools shall be required to remove ticket transport or ticket jam
h) Support cashless methods of payment
    - debit cards
    - city cards
    - system based debit cards with decrementing balances
    - magnetic stripe cards
    - smartcard
    - validation coupon(s)
    - 3rd party print@home coupons (Interleave 2 of 5, Code 128)
i) Ability to use more than a single payment method on a single transaction
j) station shall accept and recycle coins only when coin change storage for that denomination is full. When full, coins will be stored vault.
k) Unit shall dispense change in notes and coins. Note dispenser shall dispense two denominations. Note dispenser shall be integral to unit. Change shall be dispensed in notes to nearest possible whole dollar and remainder in coin. Banknote recycler allowing the replenishing of at least 2 denominations with input notes for dispensing as change to minimize operational management of cash.
l) Network data communication using Ethernet including intercom
m) ADA compliant
n) Machine shall accept merchant validation coupons as payment in full or in part
o) Receipt shall be on request or fully automated for every patron
p) Payment shall generate a transaction number and print on ticket payment mode and amount
q) APM shall be able to add value to system based cash debit or credit cards
r) Single ticket processing slot for barcode tickets and magnetic stripe cards
s) Minimum of two note dispensers ($1 and $5)
t) Coin transport mechanism refills coin change hopper
u) Messages are displayed to prompt the parker with various messages to include lot status, corporate logos, welcome statements, and special marketing statements
v) 1 spare Coin and Cash box per POF shall be included
w) Shall include a UPS for each APM
x) APM shall be capable, independent and in concert with FMS of reading tickets encoded by the Entry column (dispenser) verifying that the ticket is valid and time of payment is encoded. Exit validation time is allowed for parker and patron to retrieve vehicle and exit through the exit column. This grace period is defined by the administrator. Grace, upon exit, if expired, will require additional charges to be paid within the system at exit Cashier Station or at APM

y) OWT validation tickets, merchant validation tickets, and e-validation shall be recognized with single or multiple ticket processing by the capabilities of the specific APM machine.
z) Intercom at each APM provides parker or patron with communication assistance or emergency notification.
aa) built-in 125kHz and 13MHz proximity reader
bb) user assigned function buttons
cc) tamper alarm
dd) storage battery with UPS to complete any transaction
ee) Display is 5.7 TFT full color with impact protection screen.
ff) heater and fresh air ventilator with thermostat control
gg) Support optional Electronic Webkey solution

6.2 *Credit APMs*

The Credit Automated Payment Machine (APM) shall be capable of reading encoded tickets issued by ticket dispensers within the system, computing parking fees, allowing payment by any multiple methods of credit, debit, smart-card, validation coupons, 3rd party print@home barcode coupons and proximity cards. Station shall operate automatically and have a device on the PRCS that allows a facility to be unstaffed.

Operational Requirements:
a) Machine shall take machine-readable ticket
b) Machine shall take credit card in real-time and be CISP compliant
c) Three function button user assignable with the ability to assign the automatic sale of an event ticket, lost ticket, or any other type of ticket available in the system directly from the APM.
d) APM shall support 4 simultaneously selectable languages
e) No tools shall be required to remove ticket transport or ticket jam
f) Support cashless methods of payment
    - debit cards
    - city cards
    - system based debit cards with decrementing balances
    - magnetic stripe cards
    - smartcard
    - validation coupon(s)
    - 3rd party print@home coupons (Interleave 2 of 5, Code 128)
g) Ability to use more than a single payment method on a single transaction
h) Network data communication using Ethernet including intercom
i) ADA compliant
j) Machine shall accept merchant validation coupons as payment in full or in part
k) Receipt shall be on request or fully automated for every patron
l) Payment shall generate a transaction number and print on ticket payment mode and amount
m) APM shall be able to add value to system based cash debit or credit cards
n) Single ticket processing slot for barcode tickets and magnetic stripe cards
o) Messages are displayed to prompt the parker with various messages to include lot status, corporate logos, welcome statements, and special marketing statements
p) Shall include a UPS for each APM
q) APM shall be capable, independent and in concert with FMS of reading tickets encoded by the Entry column (dispenser) verifying that the ticket is valid and time of payment is encoded. Exit validation time is allowed for parker and patron to retrieve vehicle and exit through the exit column. This grace period is defined by the administrator. Grace, upon exit, if expired, will require additional charges to be paid within the system at exit Cashier Station or at APM
r) OWT validation tickets, merchant validation tickets, and e-validation shall be recognized with single or multiple ticket processing by the capabilities of the specific APM machine.
s) Intercom at each APM provides parker or patron with communication assistance or emergency notification.

t) built-in 125kHz and 13MHz proximity reader
u) user assigned function buttons
v) tamper alarm
w) storage battery with UPS to complete any transaction
x) Display is 5.7 TFT full color with impact protection screen.
y) heater and fresh air ventilator with thermostat control
z) Support optional Electronic Webkey solution

7 Validations

The proposed system shall be able to create and process several types of validations and shall:

1. Support validation discount types of fee amount, time, percent, rate change, surcharge, flat fee.
2. Shall support mass production of validation tickets directly from the system
3. The system shall support password protected sign-on control and allow for encoding of various values of coupons.
4. Shall support a minimum of 10,000 validation accounts with unlimited validations associated with each account.
5. Shall have a thermal validation printer that is capable of validating parking tickets with support for 2 different print locations on a single ticket.
6. Supervisors at OWT, Cashier Station, or APSs are able to print validation reports by attendant and total operations based on validation accounts.
7. Shall support the processing of minimum of 6 separate validation chaser tickets on a single transaction.
8. Shall have support for an optional Web interface based validation program that can validate parking tickets without the need for chaser tickets, stamps, or punches. The system shall be able to allow user authentication by each validation account and a barcode scanner that can scan the parking ticket for immediate validation online with the PRCS system on a user account basis. Each accounts usage shall be reflected in the PRCS system report to allow for billing associated with the validation account holder.

Abbreviations & Glossary of Terms

7.1 *Abbreviations*

The following abbreviations are used in this document:

1.	ABA	American Banking Association
2.	ANSI	American National Standards Institute
3.	ASCII	American Standard Code for Information Interchange
4.	AWG	American Wire Gauge
5.	BPS	Bits per Second
6.	CCTV	Closed Circuit Television Network (Cameras-DVR)
7.	CPU	Central Processing Unit
8.	FCC	Federal Communications Commission
9.	ID	Identification
10.	IEEE	Institute of Electrical and Electronics Engineering
11.	I/O	Input/Output
12.	NEC	National Electrical Code
13	NEMA	National Electrical Manufacturers Association
14.	OWT	Operator Workstation – Device Terminal with computer
15.	PIN	Personal Identification Number
16.	SMS	Security Management System
17.	UL	Underwriters Laboratories
18.	PRCS	Parking and Revenue Control System
19.	AVI	Automatic Vehicle Identification
20.	LPR	License Plate Recognition
21.	LPI	License Plate Identification
22.	DAZ	System Server (non-enterprise)
23.	MAU	System Server (enterprise)
24.	ACS	Access Control System
25.	APM	Automated Payment Machine
26.	POF	Pay on Foot Machine
27.	PIL	Pay in Lane Machine
28.	PAE	Pay in Entry Machine
29.	RCS	Revenue Control System (Solution and Solution Hardware)
30.	RFID	Radio Frequency Identification
31.	UPS	Uninterruptible Power Supply
31.	MPS	Management Pay Station - workstation, monitoring, and control
32.	ACS	Access Control System
33.	LAN	Local area network for data either TCPIP
35.	WAN	Wide area network for data either TCPIP
36.	APS	Administrators Pay Station (server based computer as Cashier Station)
37.	CAT5	Ethernet communication cable, unshielded twisted pair type cable.
38.	TCP-IP	Protocols: Packet transfer protocol for WAN and LAN data
39.	CISP	Cardholder Information Security Program (CISP) secures Visa cardholder data wherever it resides

7.2 *Glossary of Terms*

Group - A logical group of card readers, users, parkers, or general classification for a specific purpose to include revenue generation. Group association represents a collection of readers for which a particular cardholder may have access or defined privileges.

Acknowledge - The action taken by the system to indicate that he/she is aware of a specific operational state.

Advisory - A message provided by the system to the operator to inform him/her of a condition as reported electronically.

Alarm - A change of state as sensed by the system indicating that the system has detected a condition which its sensors, electronic benchmarks, or devices were designed to detect and output a visual and/or audible presentation.

Credential - The physical card, device, or medium mechanism carried by the cardholder, vehicle, used to gain access through portal by presentation to a reader.

Parker - A person who is a member, customer, or subscriber with associated vehicle that may not have been issued a ticket or credential or coupon for parking.

Card Reader - A device usually located at access points, designed to decode the information contained on or within a badge for the purposes of making an access or egress decision or for identity verification.

Clear - The action taken by a revenue control operator, cashier, or administrator to respond to an alarm, erase an entry process command, or delete notification advisory so that other alarms may be serviced or so that other actions may be taken.

Public Parking Entrance -access path of to a facility that charges for parking with a published or structured set of rates and that may or may not have access as a contract parker. Not to be confused with other groups of parkers to include employee parking entrances, emergency parking entrances, valet parking entrances, or subscriber parking entrances.

Download - To send computer data from one system to another; for example, to send a parker database from the enterprise server to facility server, or DAZ to OWS (owner work station) for the purposes of making access and data base decisions.

Facility Code - A coded number, in addition to the individual card number, stored within each card, ticket, or proximity key, which uniquely identifies the facility at which the card is generated and therefore valid. This feature prevents cards from one facility card with a duplicate main number from being used at another facility, which has similar access control system technology.

Host server- The central computer serves as the administrative level computer. It monitors cashier work station, equipment status, and alarms.

E-Z Quick Exit- A PRCS controlled exit point typically with gate and barrier arm that has a reader for proximity, ticket reading, rate computing, or prepaid payment option associated with it. Generally this gate is considered to require a prepaid ticket for faster exit than using a manual or cashier lane. This exit is typically un-manned. E-Z Quick Exits may have Pay-in-Lane, Pay-On-Foot, Prepaid tickets, coupons, AVI, RFID or Credit Card acceptance handling payment functions prior to entering the gate area of the lane.
Standard Exit- A controlled exit point typically equipped with exit column, cashier manual pay station, gate column and barrier arm. Rate computing is system based. Cashier stations may have exit columns as an option to allow patrons to transact credit cards, proximity card, or various payments transacted in Lane in addition to a cashier presence.

Loops– The gate monitoring device that has imbedded wires that are powered loop wire arrays create a field for voltage measurement by a loop controller. Loops are typically cut into concrete or over-poured with concrete supplied with AC voltage to wires. A separate wire has a DC voltage generated as induced voltage monitored by a controller. Measured voltage fluctuations create activation of various devices by the controller. Typically uses may include signage, gates, readers, counters, lights, or cameras.

Off-line - A mode of operation in which a device or group of devices are not in direct communication with a control work station, cashier, or administrator server (DAZ). In the off-line mode, a functioning off-line device continues to make programmed decisions and process transactions according to the process sequence stored in local programming.

Operator Workstation Terminal (OWT) - a computer, typically a cashier work station, which is part of the system or PRCS that has a system server as a host computer. Local area network,(CAT5) , Ethernet , USB, Arc-Net connections, direct connections, or remote connectivity of from various methods are supplied for the purpose of operating the revenue system, controlling of system devices, and responding to system events. A full functioning cashier station computer may include the following components: ticket reader, transaction printer, laser printer, customer payment display, monitor, and cash drawers.

Password- A combination of numbers and/or letters unique to each OWS or Server by which an approved user inputs to achieve operational status of a device or access to an operational sequence.

Reset- A command or feedback signal that indicates or generates a status that a monitored point is or has been returned to its normal state after having transferred to the alarm or trouble state.

Secured Area- A physical location within the parking facility to which access is controlled by access grant or normal ticketing operation.

Time Zone- A user programmable period made up of days of the week and hours of the day during which events may occur, rate structure(s) apply, or special programs are offered with or without discounts.

Trouble- A condition within the electronic circuitry of a monitored point indicates than an equipment malfunction, anomaly, or non-standard condition exists.

User Definable - An attribute of a PRCS function which is easily tailored by the Operator without the need for computer programming, knowledge, or experience. An attribute area on a ticket or screen for design and display graphics.

Workstation - Shortened description for Operator Workstation Terminal (OWT) or Cashier Terminal.

Fee Computer - An integral operation of the OWT, cashier terminal, or PRCS. This component computes parking fees and displays output of fee to display terminals or monitor at OWT, cashier terminal, or Cashier Station. Display may be generated both automatically and manually with computation based on time, rate, discounts, fee adjustments, daily maximum charges and pre-programmed rate structures.